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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/645,620

08/22/2003

Tyler J. Gomm

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10/06/2005

DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP

2101 L Street, NW

Washington, DC 20037

EXAMINER

GEISEL, KARA E


ART UNIT

PAPER NUMBER

2877

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/645,620	Applicant(s) GOMM ET AL. 	
	Examiner Kara E. Geisel	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-15, 17-20, 22-31, 33-37 and 39 is/are rejected.
- 7) ☒ Claim(s) 9, 16, 21, 32 and 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0105</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed January 26th, 2005, has been considered by the examiner.

Drawings

In order to make the drawings more readily readable, the parts of the apparatus shown, in Fig. 1 in block diagram form require appropriate descriptive legends. See 37 CFR § 1.84(o).

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 25 recites the limitation "said dynamic test images" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Leddy et al. (USPN 5,457,493).

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In regards to claim 1, Leddy discloses an apparatus (fig. 1a) for testing image sensors (26) comprising a digital light processing control system (21) capable of generating digital test images and directing the images onto at least one image sensor (26), and an image sensor signal detector (21 via 27).

In regards to claims 2-4, the images can be any image desired, depending on the type of sensor being tested (column 1, lines 38-49, and column 3, lines 30-50).

In regards to claim 8, the digital light processing control system is capable of generating a plurality of digital test images (column 3, lines 30-50).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-8, 10-15, 17-20, 22-31, 33-37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bross et al. (USPN 5,596,185) in view of Smith (USPN 5,694,053).

In regards to claims 1, 10, 22, 26, 29-30, 33, and 39, Bross discloses an apparatus (fig. 1) and method for testing a plurality of image sensors (32 and column 3, lines 1-8) comprising a digital light

processing control system (34-36) capable of generating digital test images and directing the images onto a plurality of image sensors (32). It is not specifically disclosed that the apparatus has an image sensor signal detector, however the invention is directed towards testing image sensors (column 1, lines 1-10). It is obvious that there would need to be a means, such as a detector, to detect the image signal the image sensors produce after sensing the generated digital test image in order to determine if the image sensors are working up to standards and furthermore, by having the detector correlate the test image to the plurality of signals from the image sensors, the user can determine a discrepancy in the image signals, and therefore, an error in the image sensors.

For example, Smith discloses a similar apparatus and method for testing a plurality of image sensors (fig. 6) comprising a digital light processing control system (1 and an LCD) capable of generating digital test images and directing the images onto a plurality of image sensors (columns 6-7, lines 60-67 and 1-12). Furthermore the apparatus and method include an image sensor signal detector (17) that correlates the test image to the plurality of signals from the image sensors (columns 6-7, lines 60-67 and 1-12). This is done in order to determine an error in the image sensors. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include in Bross's apparatus, an image sensor signal detector in order to detect the signals the image sensor produce and compare them to the test image in order to determine if the image sensors are working up to standards, or if there is an error in the image sensors.

In regards to claims 2-4, 8, 11-12, 14-15, 23-25, 31, and 34-35, it would be up to the user to determine what type of images to use, and with the control system of the invention, the images can be any image desired, including one single image, a plurality of images, static images, or dynamic images such as moving geometrical shapes, depending on the type of sensor being tested.

In regards to claims 5, 13, 27, and 36, the digital light processing control system (fig. 1) comprises a light source (10), a digital micromirror device (20) for converting light from the light source

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into a digital test image, collimating optics (12) for directing light from the light source onto the digital micromirror device, and focusing optics (28, 30), for focusing the digital test image onto an image sensor (32).

In regards to claims 6, and 17, it is not disclosed in the combined method and apparatus what type of light source is used. However it is disclosed that the light should be able to uniformly illuminate the digital micromirror device. This would be done in order to reduce errors in the measured image sensor signal. The examiner takes Official Notice, that it is well known that a uniform DC light source would be able to illuminate the digital micromirror device uniformly, and that it would be obvious to use this light source as an alternate embodiment of the light source in order to illuminate the device uniformly.

In regards to claims 7, 28, and 37, the digital light processing control system further comprises filter optics (16) for filtering light from the light source before it is directed to the digital micromirror device.

In regards to claim 18, Bross discloses an apparatus (fig. 1) for automated testing of image sensors (32 and column 3, lines 1-8) comprising a digital light processing control system (34-36) comprising a light source (10), a digital micromirror device (20) for converting light from the light source into at least one of a static and a dynamic digital test image (column 1, lines 39-44), collimating optics (12) for directing light from the light source onto the digital micromirror device, and focusing optics (28, 30), for focusing the digital test image onto an image sensor (32). It is not specifically disclosed that the apparatus has an image sensor signal detector, however the invention is directed towards testing image sensors (column 1, lines 1-10). It is obvious that there would need to be a means, such as a detector, to detect the image signal the image sensors produce after sensing the generated digital test image in order to determine if the image sensors are working up to standards and furthermore, by having the detector correlate the test image to the plurality of signals from the image sensors, the user can determine a discrepancy in the image signals, and therefore, an error in the image sensors.

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For example, Smith discloses a similar apparatus for testing a plurality of image sensors (fig. 6) comprising a digital light processing control system (1 and an LCD) capable of generating digital test images and directing the images onto a plurality of image sensors (columns 6-7, lines 60-67 and 1-12). Furthermore the apparatus include an image sensor signal detector comprising an input means for inputting a continuous signal from an image sensor device under test (17), and a means for automatically comparing a signal from an image sensor device under test to test images inputted by the digital light processing control system (columns 6-7, lines 51-67 and 1-12). This is done in order to determine an error in the image sensors. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include in Bross's apparatus, Smith's image sensor signal detector in order to detect the signals the image sensor produce and compare them to the test image in order to determine there is an error in the image sensor.

In regards to claims 19-20, the system is testing a plurality of image sensors (Bross column 3, lines 1-8). Furthermore, it would be up to the user to determine what type of images to use, and with the control system of the invention, the images can be any image desired, including one single image, or a plurality of images, depending on the type of sensor being tested.

Allowable Subject Matter

Claims 9, 16, 21, 32, and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As to claims 9 and 16, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for testing image sensors or an apparatus for simultaneously testing a plurality of image sensors comprising focusing optics capable of splitting digital test images into a plurality of identical images, in combination with the rest of the limitations of claims 9 and 16.

As to claim 21, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus for automated image sensor testing comprising focusing optics capable of splitting a test image into a plurality of test images, in combination with the rest of the limitations of claim 21.

As to claim 32, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method of testing image sensors comprising focusing optics capable of splitting digital test images into a plurality of identical test images, in combination with the rest of the limitations of claim 32.

As to claim 38, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method for simultaneously testing a plurality of image sensors comprising focusing optics capable of splitting digital test images into a plurality of identical test images, in combination with the rest of the limitations of claim 38.

Additional Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art made of record is Lopez et al. (USPN 5,448,395), Sukthankar et al. (USPN 6,618,076), and Bosser (US Pubs 2004/0108448).

Lopez discloses an apparatus for testing image sensors comprising a light processing control system capable of generating test images and directing the images onto at least one image sensor, and an image sensor signal detector.

Sukthankar discloses an apparatus for testing image sensors comprising a digital Bosser discloses light processing control system capable of generating test images and directing the images onto at least one image sensor, and an image sensor signal detector.

Bosser discloses an apparatus for testing image sensors comprising a light processing control system capable of generating test images and directing the images onto at least one image sensor, and an image sensor signal detector.

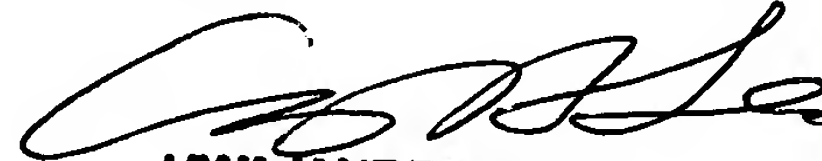
Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is **571 272 2416**. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on **571 272 2800 ext. 77**. The fax phone number for the organization where this application or proceeding is assigned is **571 273 8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**HWA (ANDREW) LEE
PRIMARY EXAMINER**

for: Gregory J. Toatley, Jr.
SPE
Art Unit 2877

K.G.
KEG

September 30, 2005